Architecture 100

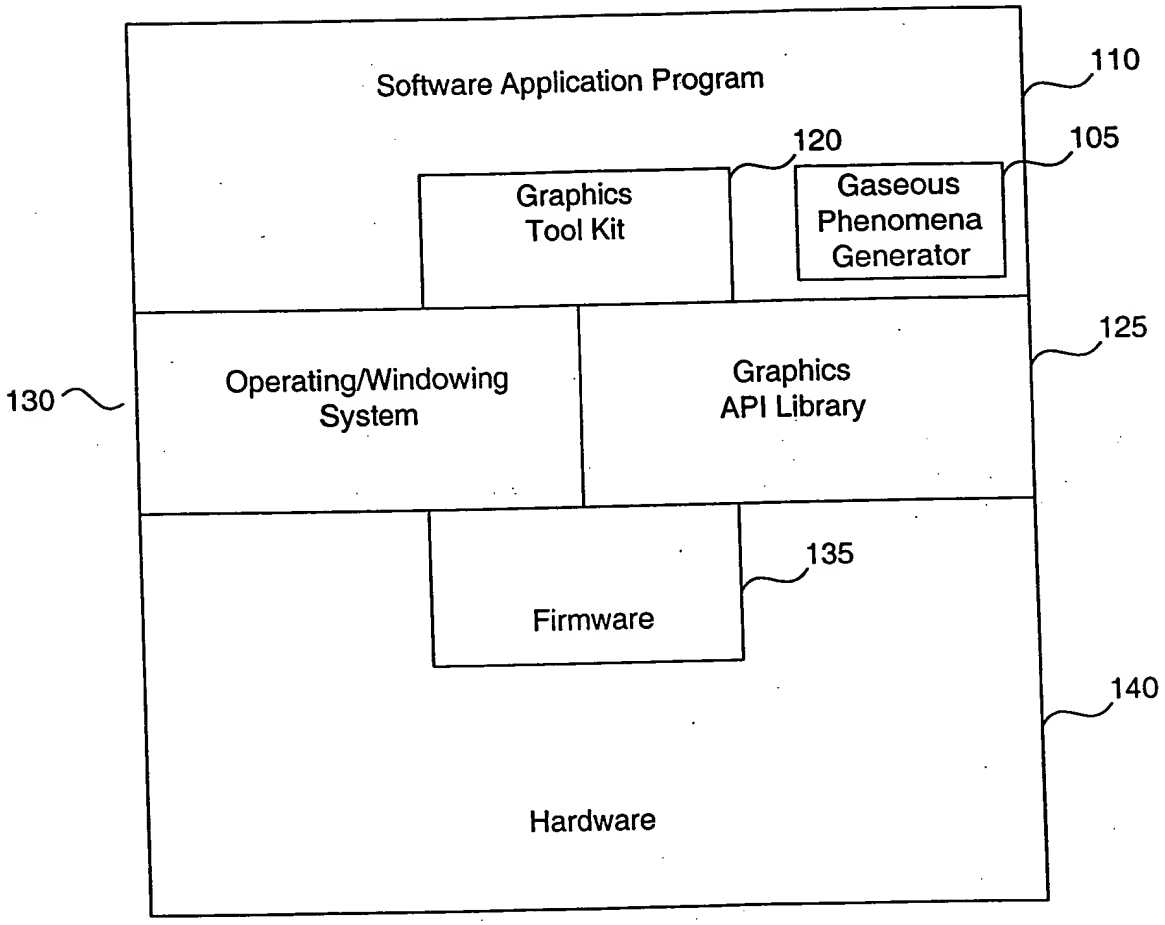


FIG. 1

0003-88.vsd/1

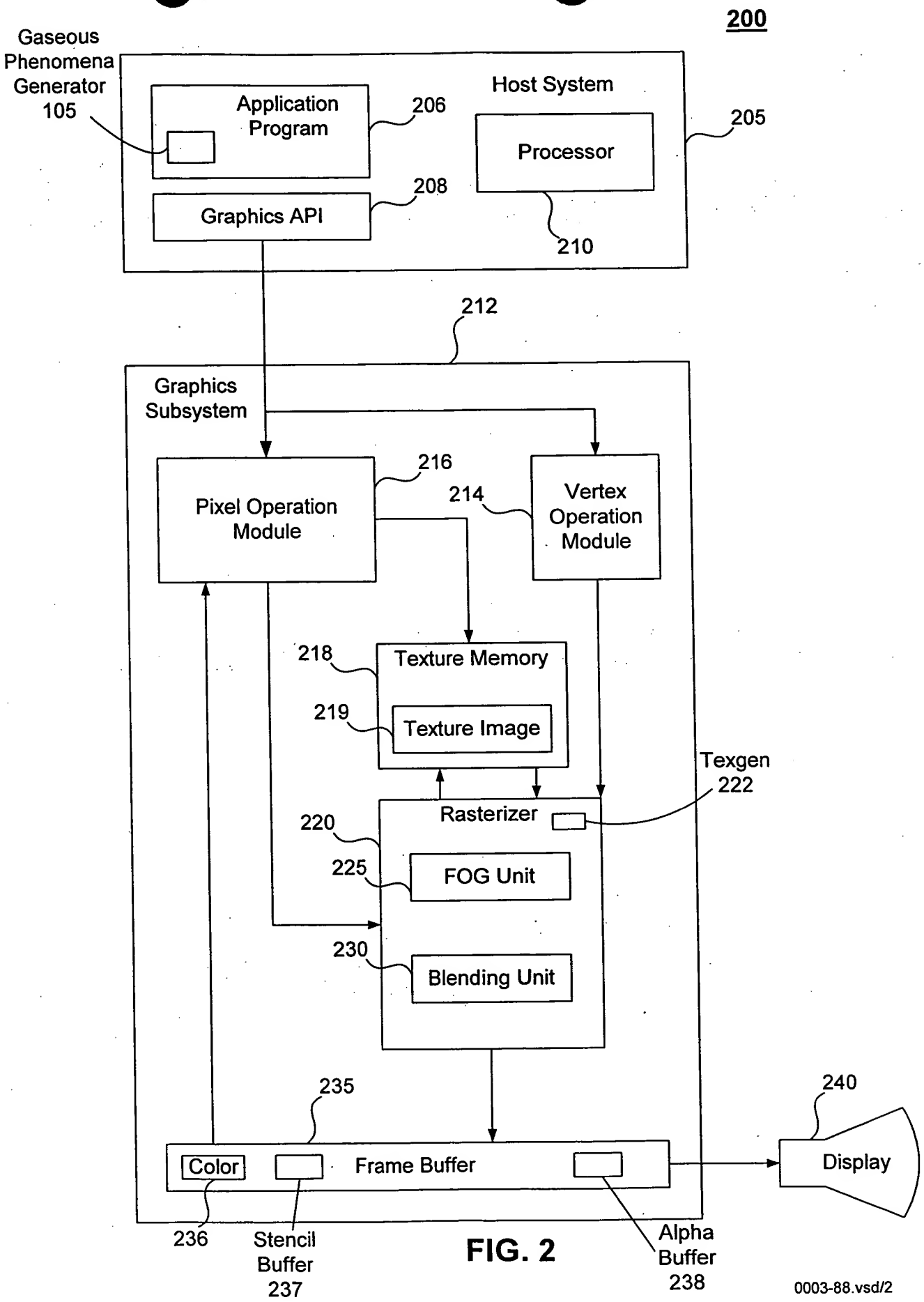

200
Gaseous Phenomena Generator 105
Host System
205
Application Program
206
Processor
208
Graphics API
210
212
Graphics Subsystem
216
Pixel Operation Module
214
Vertex Operation Module
218
Texture Memory
219
Texture Image
Texgen 222
Rasterizer
220
225
FOG Unit
230
Blending Unit
235
240
Color
Frame Buffer
Display
236
Stencil Buffer 237
Alpha Buffer 238
0003-88.vsd/2

FIG. 2

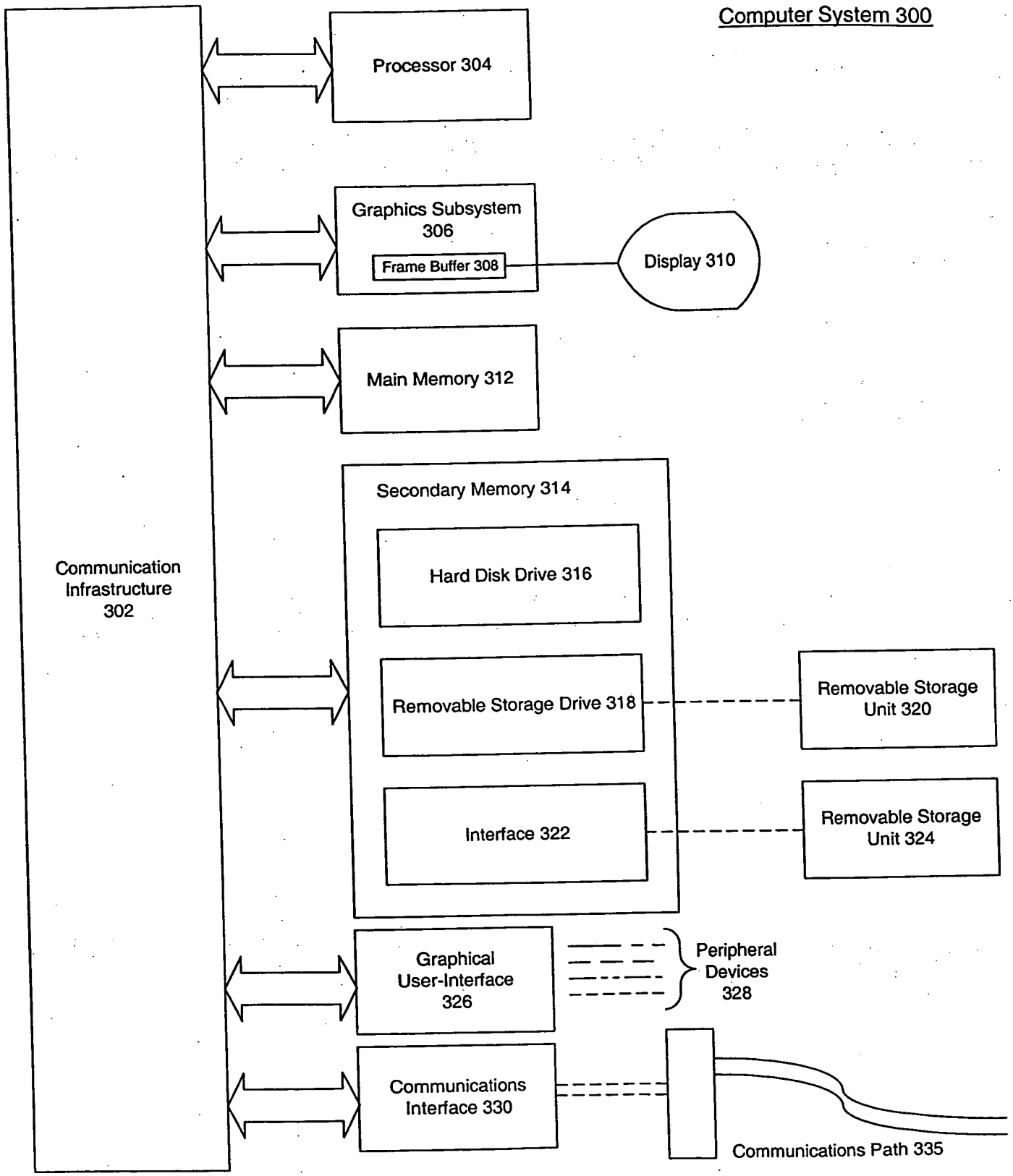


FIG. 3

0003-88.vsd/3

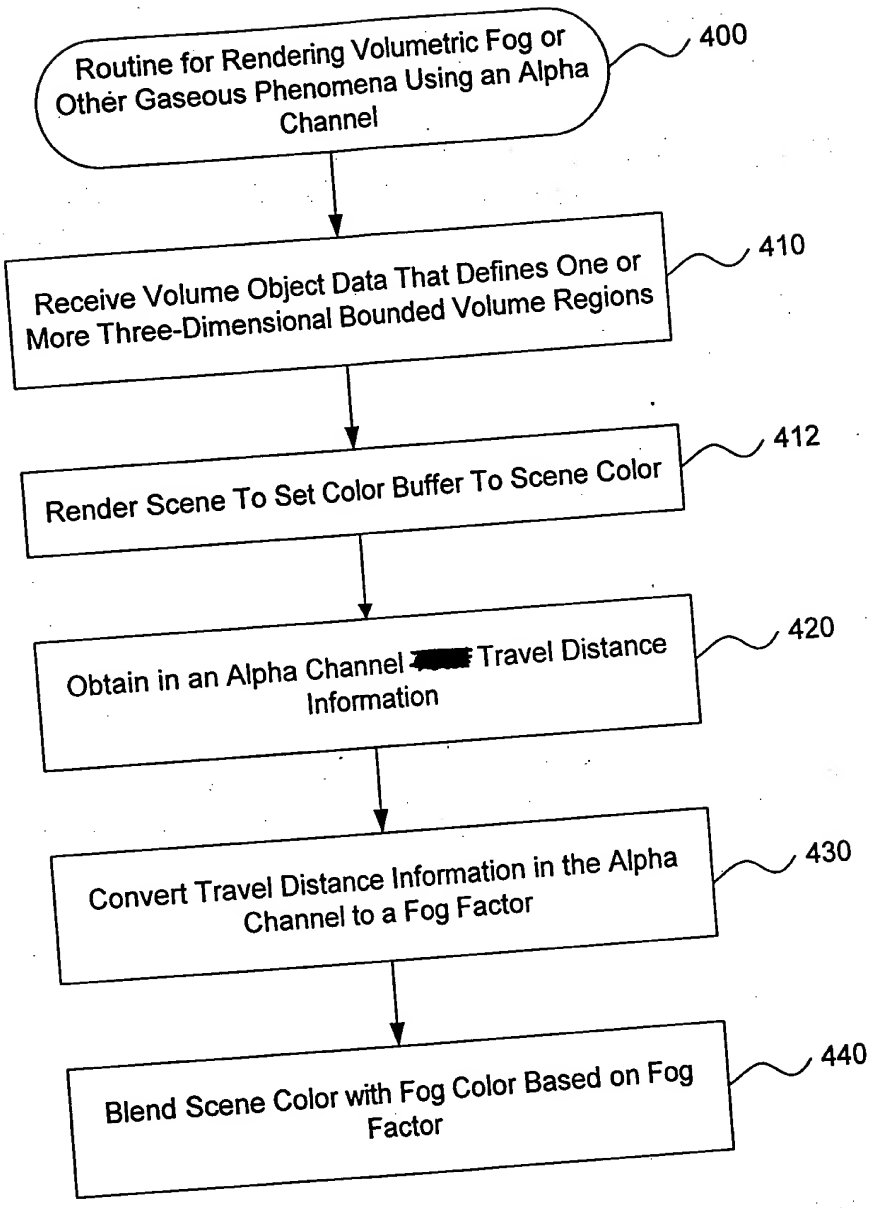


FIG. 4

0003-91.vsd/1

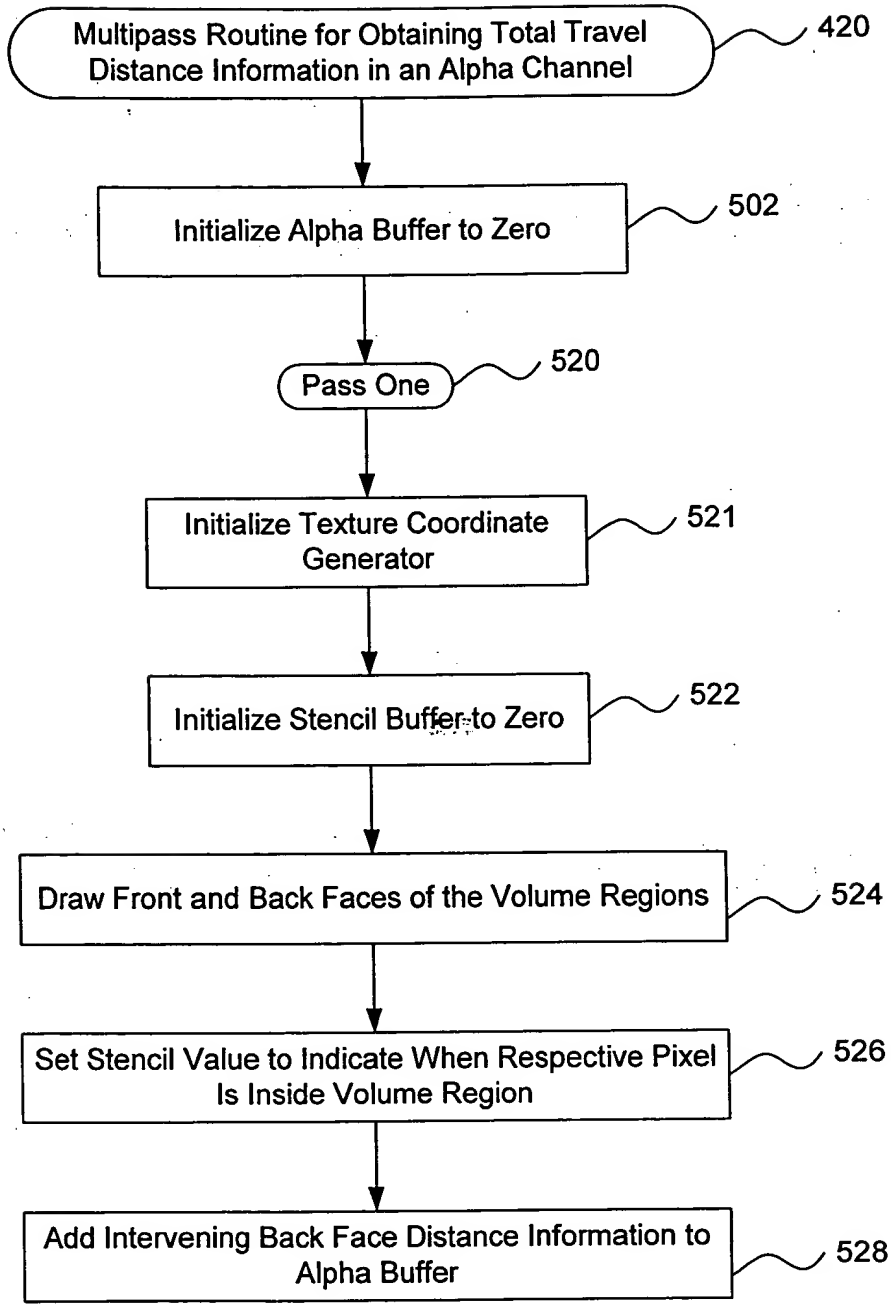


FIG. 5A

0003-91.vsd/2

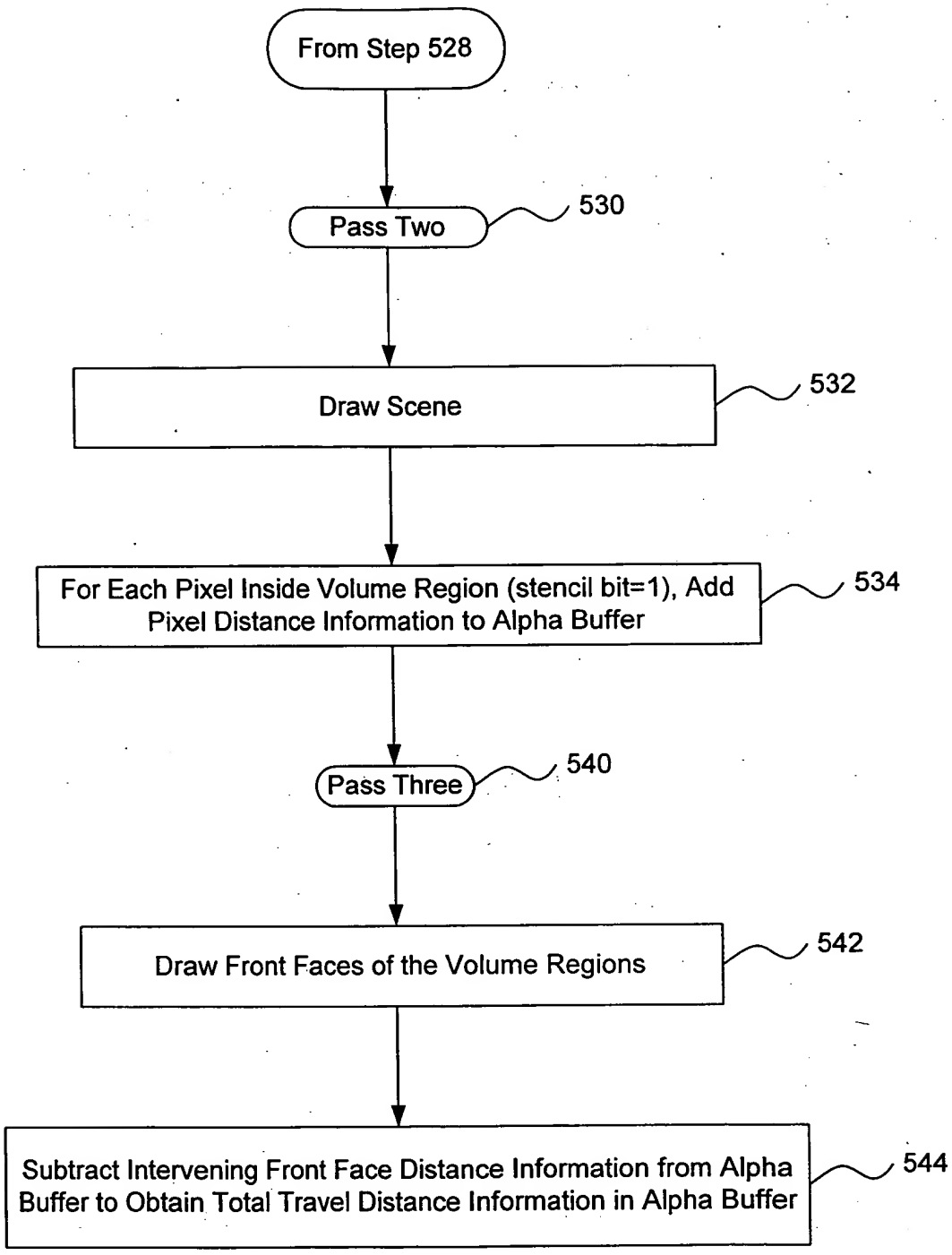


FIG. 5B

0003-91.vsd/3

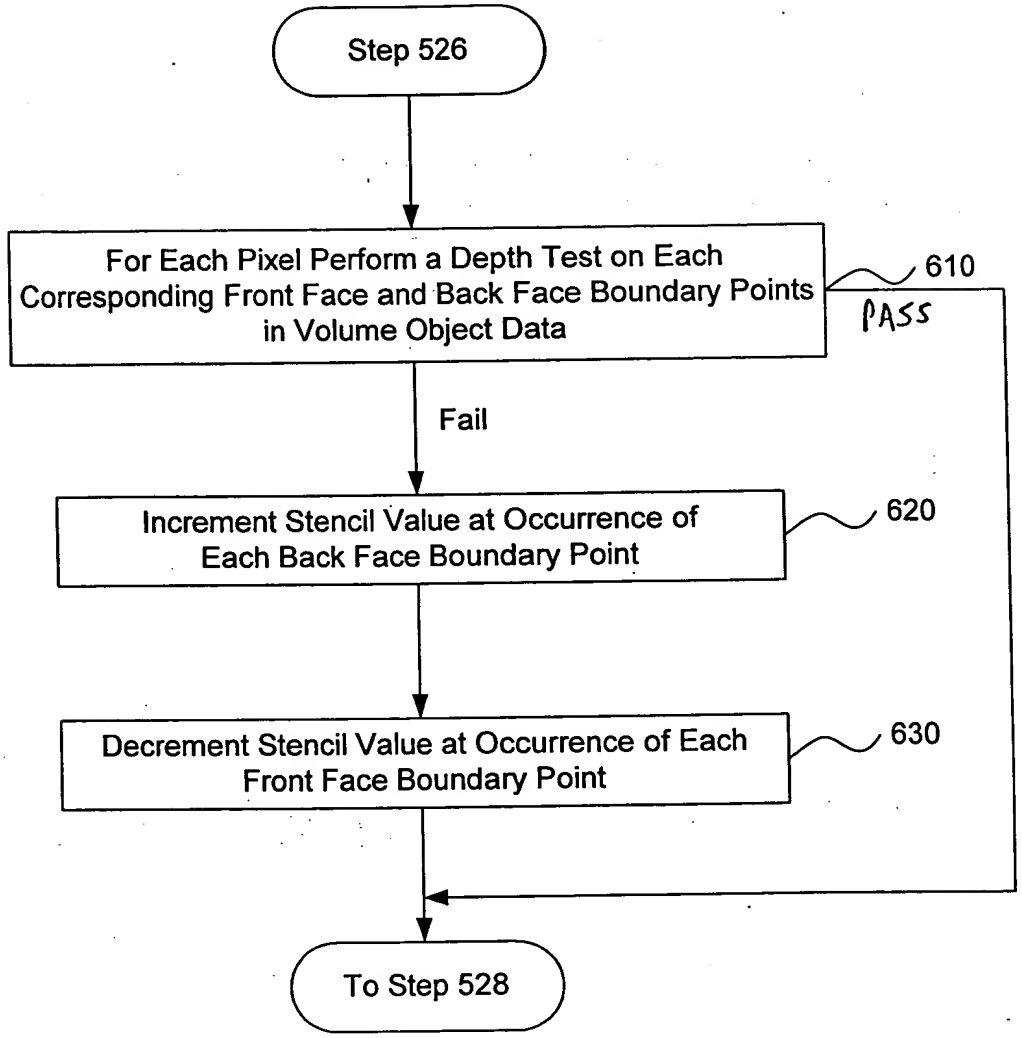
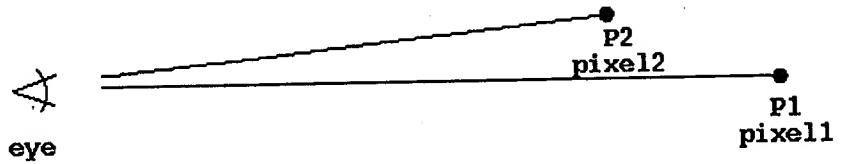


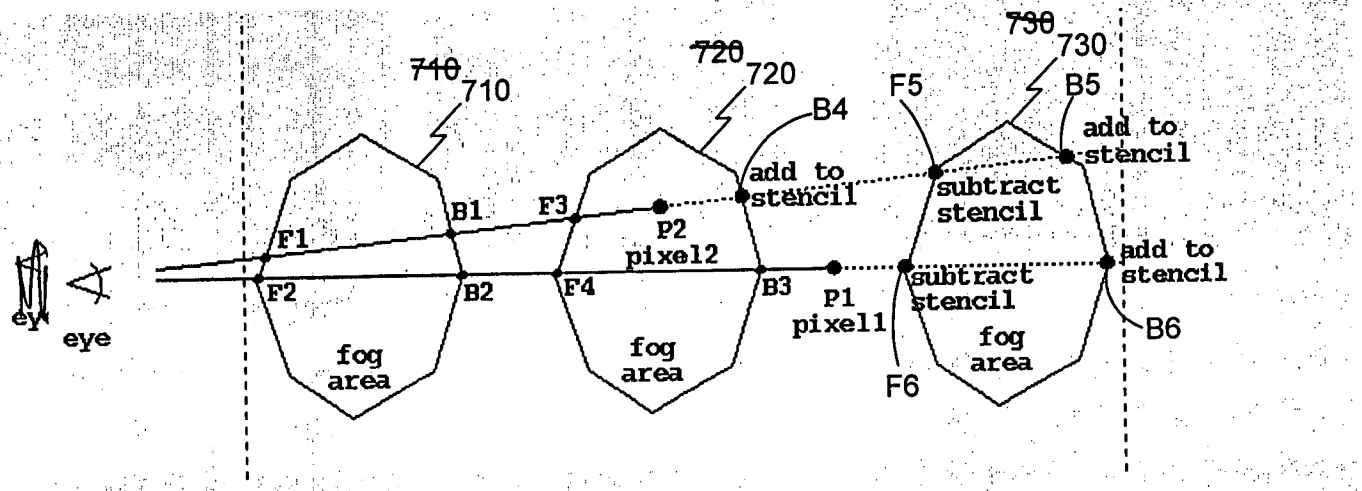
FIG. 6

0003-91.vsd/4



P1 color: P1 scene color
P2 color: P2 scene color

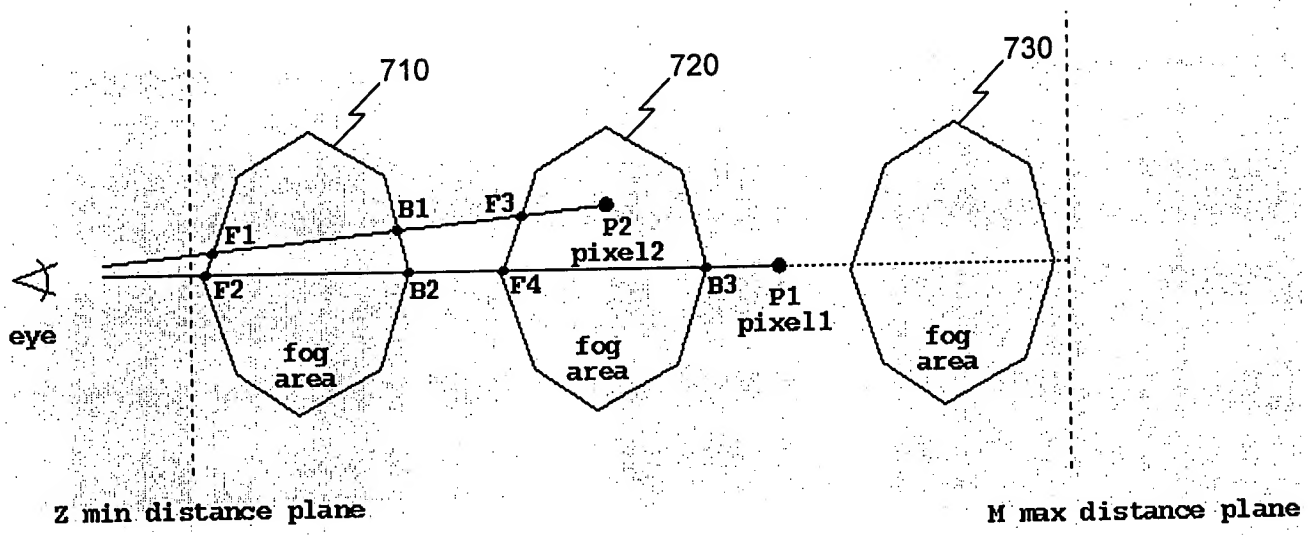
FIG. 7A



P1 alpha:
(|B2,Z|/|M,Z|)*fogScale}
+ (|B3,Z|/|M,Z|)*fogScale}
=((|B2,Z| + |B3,Z|)/|M,Z|)*fogScale
P1 stencil: 1-1 = 0

P2 alpha:
((|B1,Z|)/|M,Z|)*fogScale
P2 stencil: 1+1-1 = 1

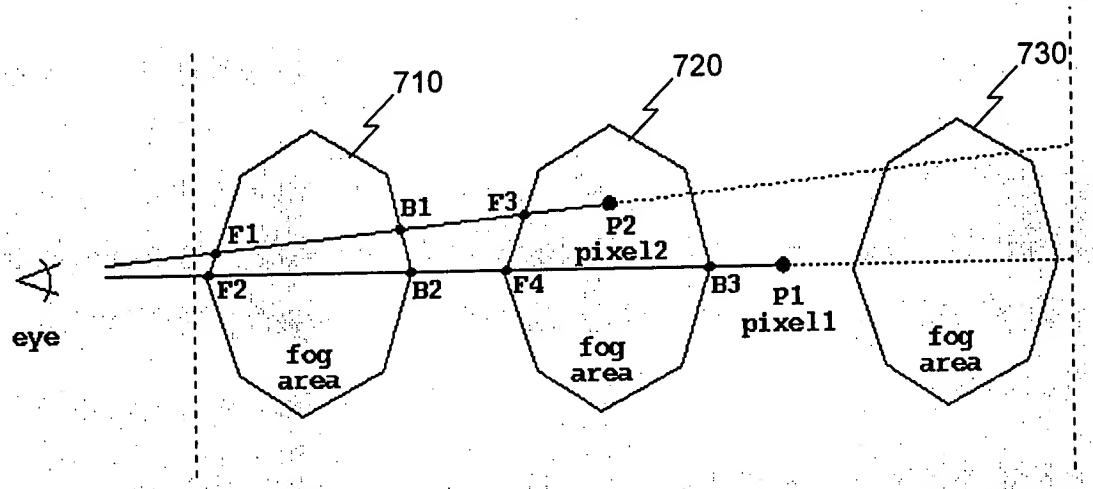
~~FIG. 7B~~ ~~FIG. 7B~~ FIG. 7B



P1 alpha: not changed, stencil 0
= ((|B2,Z| + |B3,Z|)/|M,Z|)*fogScale

P2 alpha: changed, due to stencil 1
P2 alpha
+ (|P2,Z|/|M,Z|)*fogScale)
= ((|B1,Z| + |P2,Z|)/|M,Z|)*fogScale

FIG. 7C



P1 alpha:

P1 alpha
- (|F4,Z|/|M,Z|)*fogScale)
- (|F2,Z|/|M,Z|)*fogScale)
= ((|F2,B2| + |F4,B3|)/|M,Z|)*fogScale

P2 alpha:

P2 alpha
- (|F1,Z|/|M,Z|)*fogScale)
- (|F3,Z|/|M,Z|)*fogScale)
= ((|F1,B1| + |F3,P2|)/|M,Z|)*fogScale

FIG. 7D

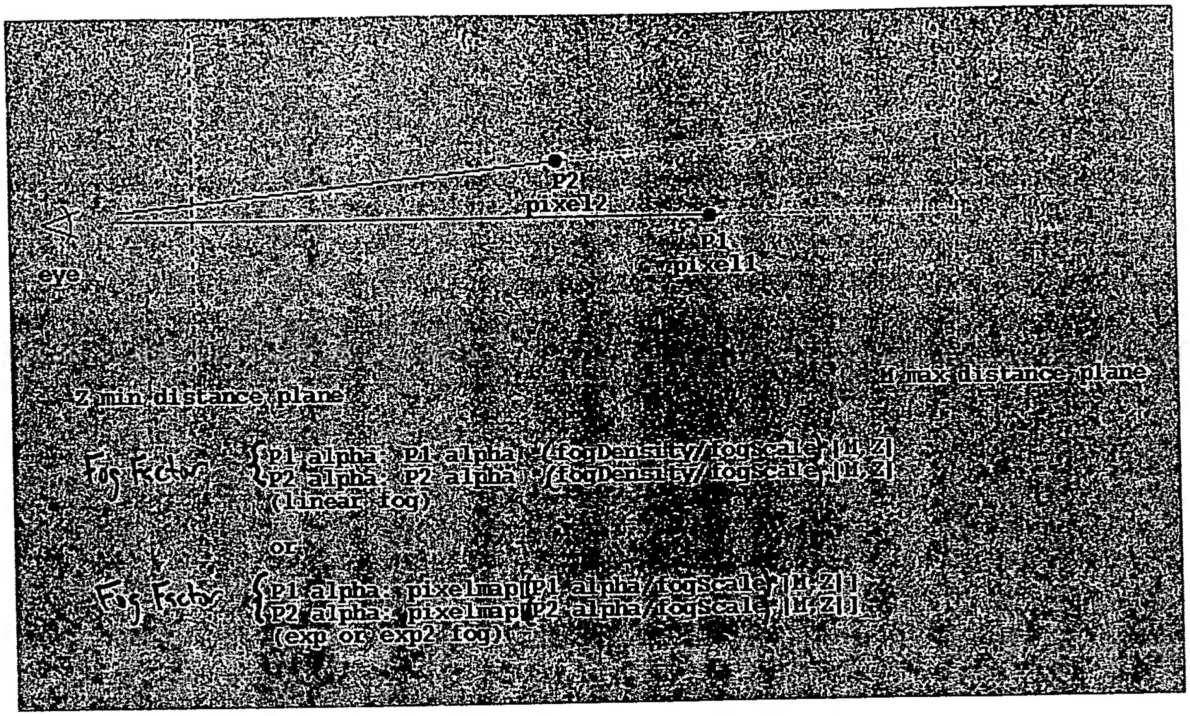
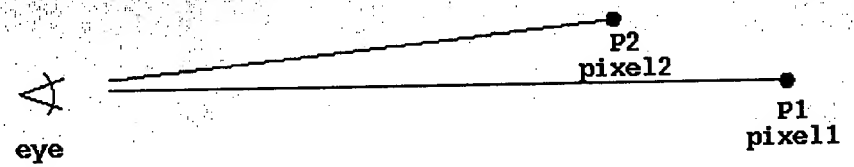

P2
pixel2
eye
P1
pixel1
M max distance plane
Z min distance plane
Fog Factor
P1 alpha P1 alpha (fogDensity/fogScale) [M Z]
P2 alpha P2 alpha (fogDensity/fogScale) [M Z]
(linear fog)
or
Fog Factor
P1 alpha pixelmap[P1 alpha/fogScale) [M Z]]
P2 alpha pixelmap[P2 alpha/fogScale) [M Z]]
(exp or exp2 fog)

FIG. 7E



P1 color: P1 color * (1 - P1 alpha) + fogColor * P1 alpha
P2 color: P2 color * (1 - P2 alpha) + fogColor * P2 alpha

FIG. 7F